Points in Melting Silver

One Crucible, worth, $50.00

½ " " $100

will last 24 days

will melt 20 000 oz per melt.

or say 5 melts pr day = 100,000 oz

or in 24 working days 2,400,000 oz

$100. worth Steel crucible melts 2,400,000 oz

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6 black lead crucibles No. 70 worth @ 3¢.

pr No. 420 Nos @ 3¢ = $12.60

each crucible will last 4 days.

24 days = 4 x 6 days

hence cost = $12.60 x 6 = $75.60

1 melt = 3000 oz.

6 melts x 6 furnaces = 36 melts pr. day

36 melts x 3000 oz = 108 000 oz. pr. day

108,000 x 24 days = 2,592,000 oz.

For melting Silver not Gold (Iron) Points in melting Silver

1. Steel crucible, can be made of any form & size; & seem to resist fire pretty well the Expt. made, not a fair test of wear — but assumed as $\frac{1}{2}$, - life of X = 24 days.

~~(See~~ (See points page 1.) (over)

not much diff. in cost; compared with blk. lead. — attendance cheaper

2. Furnace. ~~Ponard's, &c~~ Importance of neutral flame, never excess of oxygen rather neutral or slightly or of reducing gas, — the former burns off Copper, & tends to oxidize silver. — hence necessity of control of proportion of air entering Too high heat would volatilize silver, — hence necessity of control of heat.

3. Ponard's furn. less under control in these respects, & better adapted to iron as it is used

4 Sellers rivet heating furnace seems to combine the advantage points req^d — for our use

We saw it a full red heat admirable for heating rivets, but not bright red sufficient for silver. I doubt not the flame can be made oxidizing or reducing — & a little experience would enable workman to judge of the due proportion for silver. I doubt not but that it could be made to produce a higher heat, also well proportioned in air & gas; although we did not see it so — The fire would be on one side, (best for probably best at the back) & two or perhaps more crucibles in front heated by the one fire.

Comparison of two modes of heating with crucibles, convenience of access, & pouring off residue by lifting out pot. work on small quantity with one fire increase of furnaces, increase quantity melted ad libitum. — disadvantages, ladling out metal, spilling & splashing, — dropping into the fire, volatilization — quantity of grains produced, distributed among

Points in melting silver

ashes, ~~ore~~ cinder, &c. — no doubt adds to the absolute losses in working gold & silver.

Sellers proposes to work the Rivet furnace ~~specially contrived~~ as adapted to heat two ~~four~~ melting crucibles, made of cast steel, of some 20 inches depth, to hold about 10,000 oz. each. with a pipe leading off from the bottom, to a point outside the great heat of the fire, & yet so surrounded with flame, as to keep the silver contained in the pipe fluid to the end, & ready to be tapped at any moment. This system presents the advantages that even if the metal were ladled out as usual (without the use of the tap), the spilling would be on the hearth of the furnace from which it would be easily gathered, without intermix. of cinder &c — a more cleanly operation. — Same access to surface of metal to flux.

Undoubtedly, ~~Bell~~ neater & better to heat ~~X at~~ apart from contact with fuel, by flame.

Points in Silver Melting

Economy of Steel X. & Blk Ld X. (Sep. 1).

Before determining the ~~eta~~ value of the Rivett furnace ~~(modified for silver)~~ compared with our present. The practical method is the only one. that of using the furnace for melting the usual quantities employed. To do this the furnace modified ~~as well as can be done~~, to take in a pot of ~~##~~ sufficient size for melting a quantity of metal, say 300 to 3000 oz. It should then be filled with the requisite quantity of copper, as representative of silver, instead of ~~##~~ fine silver. itself.

a question whether the ~~gain that is effected~~ Rivet furnace with steel crucible would cost less than our present Blk Ld ~~X~~ ~~plain furnace~~. 2: Whether the gain in the ~~steel for~~ flame furnace Steel X, would be sufficient to warrant its substitution for Blk Ld. without further experiments.